THE PERCEIVED EFFECTIVENESS OF MENTORING BY COMPANY GRADE OFFICERS IN THE UNITED STATES AIR FORCE

THESIS

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Abstract

Businesses and organizations are continuously trying to make people more productive by using mentoring. The benefits of mentoring include higher levels of career satisfaction, incomes, promotions, self-efficacy and productivity.

Past research has supported two general approaches referred to as informal and formal mentoring. Informal mentoring relationships are spontaneous and occur between two people without the involvement of the organization. Formal relationships are managed and sanctioned by the organization. The United States Air Force has a formal mentoring program.

The purpose of this research was to evaluate the perceptions of mentoring effectiveness by company grade officers in the United States Air Force. Specifically, this thesis sought to determine the perceived effectiveness of mentoring by participants in a formal mentoring relationships compared to participants in informal mentoring relationships using secondary data collected by the Defense Manpower Data Center.

The results indicated that formal mentoring was perceived as more effective than informal mentoring in overall mentoring and career development functions. The results for psychosocial mentoring were insignificant. Results suggested that the current formal mentoring program is effective in terms of CGOs perceptions of general and career related mentoring.

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Jason B. Wolff

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CHAPTER 1

INTRODUCTION

In today's fast-paced world, businesses and organizations are continuously transforming and trying to make people more productive. In the pursuit of making people more productive, organizations try to utilize mentoring programs in the hopes of improving their employees' job comprehension and mastering of job skills. Mentoring has been a tool of considerable interest in the last twenty years and has been utilized by many organizations to develop their personnel (Black, Suarez, & Medina, 2004).

Historically, research has shown the origins of mentoring to be several thousand years old with the Greek mythological work called, *The Odyssey,* in 800 B.C with a character named "Mentor" (Parada, 1997). Mentor served in the capacity as an advisor to Telemachus, King Odysseus's son, by imparting advice and experiences in order to help the development of Telemachus. This relationship laid the foundation for future mentoring relationships (Parada, 1997). In terms of mentor roles, Mentor and Telemachus were the mentor and protégé, respectively.

Mentoring relationships have been traditionally categorized into informal and formal programs. Informal relationships are spontaneous and develop between a mentor and protégé without external involvement from the organization (Chao, Walz & Gardner, 1992). When the organization takes an active role in mentoring by sanctioning and or

managing a program, the mentoring now constitutes a formal program (Chao, et al., 1992).

Formal and informal mentoring relationships offer the opportunity for a mentor to impart guidance and support, categorized as career development and psychosocial functions (Kram, 1985). Career development functions are interactions between the mentor and protégé that enhance career advancement and include activities such as sponsorship, coaching, protection, challenging assignments, exposure and visibility (Kram, 1985). Psychosocial functions are those aspects of the relationship that enhance the sense of competence, identity, and effectiveness in a professional role and include role modeling, counseling, friendship, acceptance and confirmation (Kram, 1985).

The environments in which mentoring has been investigated are very diverse, to include public utility companies (Kram, 1985), educational institutions (Noe, 1988), and the military (Read, 1997). The environment of interest for this study is the United States Air Force (USAF).

The USAF established a formal mentoring program in 1996 in order to improve the performance of airmen in their duties (AFPD 36-34, 1996). With the establishment of the USAF mentoring program, the role of protégé in the officer corps includes Second Lieutenants, First Lieutenants and Captains (AFI 36-3401, 2001). Individuals in these ranks are commonly referred to as Company Grade Officers (CGOs). Previous research involving the USAF mentoring programs suggests CGOs in formal programs reported receiving more effective career-related mentoring compared to mentoring received from informal mentors (Gibson, 1998). Su (2005) also conducted research on USAF military students (including CGOs) and reported that individuals in formal mentoring programs

indicated increased perceptions of effective mentoring the longer the duration of the mentoring program. These studies have reported similar findings indicating that formal programs may be perceived as being more effective in mentoring CGOs. The USAF is not the only organization to have conducted mentoring.

Previous research involving Army, Navy, Marine Corps, and Coast Guard personnel suggests participants in a variety of programs are receiving mentoring (Baker, 2001; Oakes, 2005; Payne & Huffman, 2005; Read, 1997; Singer, 1999). These military studies range from a longitudinal study of a mentoring program involving active duty Army officers (Payne & Huffman, 2005) to the US Naval Academy (Baker, 2001). This research presents a variety of environments that may be similar to those surveyed by the Defense Manpower Data Center (DMDC) in the 2004 Status of Forces (SOF) survey (DMDC, 2004).

Researchers have designed many mentoring instruments in order measure the perceived effectiveness of mentoring in the environments and populations discussed (Noe, 1998; Scandura, 1992; Tepper, Shaffer, & Tepper, 1996). These mentoring measures are often based on Kram's (1985) taxonomy of mentoring (DMDC, 2003; Noe, 1998; Tepper, Shaffer, & Tepper, 1996), and some of these measures have been used to study the perception of mentoring in the USAF (DMDC, 2003; Gibson, 1998; Su, 2005).

According to the DMDC (2003), there has been little research focused on studying mentoring in military samples. The purpose of this study was to further research efforts in mentoring and to determine if there is a difference in perceived mentoring effectiveness based on whether the participants were involved in formal or informal mentoring in the military environment. The USAF has mandated a formal

program, but little research has been done to see if there is a perceived difference in the mentoring received from the mandated (formal) program as compared to those participants indicating being involved in informal programs. This research will compare the perceptions of mentoring by Air Force CGOs involved in mentoring programs collected by the 2004 SOF in order to determine if there is a difference in perceptions of effectiveness from CGOs in formal and informal mentoring relationships. The results may assist Air Force leadership in managing the current mentoring program.

In summary, chapter I has provided mentoring history, types of programs, environments, previous military studies, and objective of this research. Chapter II presents an in-depth review of the existing literature on this subject. Chapter III describes the DMDC study, the content analysis, the development of the scales, and the data used to meet the research objective. Chapter IV provides the findings of the study, and Chapter V provides conclusions, limitations, areas for further research, and contributions to the Air Force.

CHAPTER 2

LITERATURE REVIEW

Preface

A discussion of some generally accepted terms and definitions and an overview of fundamental concepts involved in mentoring will first be presented. The presentation of different mentoring measures as well as examples representing mentors and protégés in formal and informal mentoring programs will follow. Then, studies from previous military research will be explored. Finally, research hypotheses will be presented as appropriate.

Definitions

Today, academicians generally define mentoring as a relationship where individuals with advanced experience and knowledge help less experienced members to develop and advance at work (Kram, 1985; Paglis, Green, & Bauer, 2006; Ragins & Cotton, 1999). The mentor is usually an experienced, higher ranking, senior member of the organization committed to providing support to a protégé's personal and professional development (Kram, 1985; Noe 1988). The protégé, usually in the early stage of his or her career, is typically the inexperienced, junior individual whom the mentor takes an interest in (Kram, 1985; Noe, 1988).

Based on in-depth interviews of 18 mentoring dyads at a public utility company, Kram (1985) developed a taxonomy of general components of mentoring known as career development and psychosocial functions (Kram, 1985). Kram (1985) defined career development interactions between the mentor and protégé as functions of the

relationship that enhance career advancement. Career functions include sponsorship, exposure and visibility, coaching, protection, and challenging assignment.

Sponsorship is described as a senior individual's public support of a junior individual in the organization (Kram, 1985). Advancements and opportunities come from the senior individual actively nominating the junior individual for promotions. The support from the sponsor allows the individual to be noticed, especially when the individual's performance may not have been noticed otherwise (Kram, 1985).

Kram (1985) defined exposure and visibility as providing opportunities and responsibilities that place the junior individual in contact with key players in the organization. These opportunities could result in exposing the junior individual to situations where the mentor could coach and provide protection. Coaching involves the mentor assisting the protégé via personal experience in order to teach the protégé how to navigate the business environment (Kram, 1985). Protection involves the mentor exercising protective techniques and behaviors while the protégé is learning the new skills and tactics in order to shield the protégé from untimely or damaging contact with key players.

The last of Kram's (1985) career functions is challenging assignments. Challenging assignments are given to improve technical competencies and performance feedback (Kram, 1985). The assignments are utilized to increase the skill set of the protégé, thus allowing the mentor to evaluate progress and plan future opportunities (Kram, 1985) to prepare the protégé to excel independently in a professional role.

Kram (1985) defined psychosocial functions are those aspects of the relationship that enhance the sense of competence, identity, and effectiveness in a professional role.

The psychosocial functions are role modeling, acceptance and confirmation, counseling, and friendship.

"Role modeling is the senior individual's attitudes, values and behavior that provide a blueprint and structure for the junior individual to emulate" (Kram, 1985, p. 33). The senior colleague projects a desirable example that the protégé can understand and emulate (Kram, 1985). The protégé thus has the opportunity to adopt mannerisms and traits of the mentor that are admired and valued by the protégé to the point of personalizing these actions as his own (Kram, 1985). Kram (1985) suggested that this process may help shape the protégé's acceptance of a professional identity and confirmation of personal values.

Kram defined the acceptance and confirmation function as an interaction in which both the mentor and the protégé derive a sense of self from the positive feedback conveyed by each other (Kram, 1985). The protégé has hopefully developed competency in the work environment and can be acknowledged by the mentor as being proficient to accomplish the work assigned. Acceptance and confirmation develop based on a basic trust that encourages the protégé to take risks and share ideas on his perspective within the safety of a support structure at work (Kram, 1985).

Kram (1985) found that the mentors also engaged in counseling by providing a different perspective and sharing personal experience to allow the protégé to explore personal concerns. The counseling function encompasses the protégé's relationship with self, the organization, the community, family, and other aspects of life (Kram, 1985). The mentor may communicate his perspective and experiences by talking openly with the protégé and acting as a sounding board in order to help the protégé keep priorities in

order to aid the protégé in solving professional and personal problems. Counseling functions often go beyond the confines of the work environment and become personal in nature (Kram, 1985). The personal dimension may address anxieties, relationship issues, fears, and other topics that may take away from the protégé's productivity at work. The position of mentor and confidant creates an alliance between the protégé and the mentor that is very important when starting in a new environment (Kram, 1985) and may lead to the start of a friendship outside of the work environment.

Kram (1985) suggested friendship is demonstrated through social interactions by the mentor and protégé. The mentor and protégé should have a mutual liking of each other and take enjoyment in participating and sharing experiences (Kram, 1985). A potential obstacle to the relationship is that a mutual liking is not always guaranteed. As the mentor or protégé may not view the mentoring match as compatible, a dislike of the other or stalled mentoring relationship may result. Social settings often create opportunities for more personal interactions and exchanges of thoughts and ideas between mentor and protégé (Kram, 1985). When dealing with relationships on a social level, there exists the potential for negative effects to occur at work, due to conflicts that take place outside of the work environment (Kram, 1985). The consequences of negative social interactions may make the mentor or protégé feel uncomfortable, thus creating a non-conducive work environment.

Empirical research has supported Kram's taxonomy of career development and psychosocial functions in describing the general categories of activities involved in mentoring, but the manner in which the functions are measured and described have varied from study to study. Noe's (1988) mentoring function scales (MFS) assessed the extent

mentors provided career and psychosocial support to the development of the protégé based on Kram's taxonomy. Noe's (1988) MFS also included measures for protégé gender, job involvement, and career planning activities as related to the development of psychosocial outcomes (Noe, 1988). Protégés in Noe's (1988) study indicated receiving limited coaching, sponsorship, and protection from the assigned mentor as compared to the significantly greater perception of receiving psychosocial functions from the assigned mentor. As mentoring research has progressed, other researchers have developed their own instruments.

Scandura (1992) developed a mentoring measure composed of three categories of mentoring activities. Scandura's (1992) three categories were vocational, psychosocial support, and role modeling. In her study of manufacturing managers, Scandura (1992) found vocational mentoring was positively related to promotion, while psychosocial support was positively related to manager's salary level. The overall interpretation of Noe's (1988) and Scandura's (1992) results indicated the activities and perceptions described as psychosocial and career development functions incorporated actions that could be measured using either instrument to measure perceptions of mentoring effectiveness.

Ragins and Cotton (1999) continued with descriptions and utilization of scales based on components of Kram's mentoring functions in their MBA students. Ragins and Cotton (1999) modified their descriptions of the sub categories of the mentoring functions by labeling the functions as sponsor, coach, protect, exposure, friendship, role modeling counseling, acceptance, and including new functions labeled promotion and compensation. Ragins and Cotton's (1999) study found that protégés in an informal

mentoring relationships reported receiving more career development, psychosocial functions and role modeling support from mentors than protégés in a formal mentoring relationship (Ragins & Cotton, 1999).

The aforementioned studies have provided a viable foundation for measuring mentoring perceptions in different environments and populations (Noe, 1988; Ragins & Cotton, 1999; Scandura, 1992). Researchers have incorporated different categorizations (Ragins & Cotton, 1999; Scandura, 1992) and others have used Kram's taxonomy in its entirety (Noe, 1988; Tepper, Shaffer, & Tepper, 1996) to measure perceptions of mentoring. Taking a look at the overall research, the categories seem similar in nature when compared and can be used to measure mentoring effectiveness in diverse environments. Examples of commonly used measurement instruments will be presented next.

Instruments

Research in mentoring has led to the development of scales to measure the activities protégés perceived as receiving from their mentors (Tepper, et al., 1996). Several instruments based on Kram's taxonomy have been developed, tested, and discussed in the management literature (i.e., Noe, 1988; Scandura, 1992; Tepper, et al.).

Noe's (1988) study of 139 educators and 43 mentors utilized a 29-item MFS to assess the extent to which mentors provided career and psychosocial outcomes to protégés (Noe, 1988). Noe's (1988) instrument components were based on Kram's nine categories to measure career-related and psychosocial functions. Noe (1988) validated his measure using cases from nine different sites across the United States ($\alpha = .89$, $n = 182$).

Scandura (1992) surveyed 244 high technology manufacturing managers in the Midwest United States using an 18-item instrument ($\alpha = .88$, $n = 244$). Both Scandura (1992) and Noe (1988) developed self-report instruments; however, the categorizations were different when it came to the mentoring functions.

Comparing the two instruments, Noe's (1988) study indicated mentoring actions fit into Kram's two categories of psychosocial and career development functions. Scandura's (1992), however, indicated three distinct categories of vocational, psychosocial support, and role modeling to represent the perceived mentoring effectiveness (Scandura, 1992).

Tepper, Shaffer, and Tepper (1996) developed a 16-item measure, known as Tepper, Shaffer and Tepper (1996) Mentoring Function Scales (MFS), to examine responses from a diverse population of 568 full-time employees, to include MBA students, middle-level managers, operating restaurant managers, and professional level employees in the soft drink industry ($\alpha = .92$, $n = 568$). The purpose of this study was to see if the MFS was a valid instrument in measuring mentoring functions. The Tepper, Shaffer & Tepper (1996) MFS is very similar in appearance and content to the 16-item instrument utilized in the Status of Forces (SOF) survey by the Defense Manpower Data Center (DMDC) administered to the Department of Defense (DMDC, 2004).

The DMDC is the Department of Defense agency responsible for surveying the active-duty populations of the Army, Navy, Marine Corps, and Air Force. The 2004 SOF survey is an instrument that evaluated existing programs and policies affecting active-duty populations at that time (DMDC, 2004). The SOF surveys are accomplished every two years with the results influencing future programs and policies (DMDC, 2004). The

DMDC designed a 16-item instrument to measure mentoring perceptions (DMDC, 2003). A confirmatory factor analysis produced two-factors, labeled by DMDC (2003) as Career Development and Social Mentoring (psychosocial). The Career Development scale consisted of nine items designed to measure career development (DMDC, 2003). The Social Mentoring (psychosocial) scale consisted of seven items designed to measure psychosocial support and guidance (DMDC, 2003). The results ($\alpha = .92$, $n = 19{,}960$) were confirmed by an independent analysis conducted by the University of Illinois at Urabana-Champaign (DMDC, 2003).

The instruments used to measure the perception of mentoring in these studies all varied in terms of description of factors used, work environments, and sample populations. The following studies have continued to utilize the scales previously mentioned. Noe's scale was utilized by Day and Allen (2004) on 125 employees at southeastern municipality with respondents that indicated receiving mentoring having reported higher levels of career motivation, self efficacy, and career success compared to non-mentored respondents (Day & Allen, 2004). Scandura's scales have been utilized by Scandura & Williams (2004) on a sample of 275 MBA students across the country with respondents that indicated supervisory mentors having reported higher level of career mentoring, job satisfaction, and organizational commitment than respondents with non-supervisory mentors (Scandura & Williams, 2004). The Tepper, Shaffer and Tepper (1996) MFS survey was administered by Plaza, Draugalis, Skrepnek and Slack (2004) to a sample of 75 academic deans with respondents indicating career-related mentoring as being valued more than psychosocial mentoring by current pharmacy deans (Plaza, Draugalis, Skrepnek, & Slack, 2004).

A commonality across the instruments is that all have generally measured the components of mentoring incorporated in Kram's (1985) career and psychosocial functions taxonomy (e.g., Day & Allen, 2004; Noe, 1988; Scandura, 1992; Scandura & Williams, 2004; Tepper, et al., 1996). These measures have been used with mentors and protégés in both formal and informal research settings. A summary of instruments and populations is depicted in Table 1.

Table 1
Mentoring Scale Matrix

Researcher	n	Measure	α
DMDC (2003)	19,960	16-item Mentoring Efffectiveness Scale	.92
Noe (1988)	182	29- item Mentoring Function Scale	.89
Scandura (1992)	244	18-item Mentoring Function Scale	.88
Tepper, Shaffe, and Tepper (1996)	586	16-item Mentoring Function Scales	.92

Formal and Informal Mentoring

Research has supported two general mentoring relationships designated as informal and formal mentoring. Informal mentoring relationships are spontaneous and occur between two people without the involvement, support or formal recognition of the organization (Chao, Walz & Gardner, 1992).

Formal mentoring relationships have programs that are managed and sanctioned by the organization (Chao, et al., 1992). Formal mentoring programs incorporate general guidelines that are different from the guidelines incorporated in informal programs. An overview of formal and informal mentoring programs will be presented next.

Formal Mentoring

Formal mentoring provides a vehicle for career and psychosocial functions to improve employee performance, job satisfaction, and reduce employee turnover intentions (Chao, et al., 1992; Ragins & Cotton, 1999; Singer 1999). The formal

mentoring program is usually managed and supported by the organization through a career development program or the human resource department (Kram, 1985). The formal program management will often be involved in matching mentors and protégés. This matching process can vary from random matching to assignment by committee to mentor selection based on protégé profiles (Ragins & Cotton, 1999) to the supervisor being assigned as the mentor (Gibson, 1998), but there is no standard matching process.

Hierarchical organizations, such as the military (Gibson, 1998; Su, 2005; AFI 36-3401, 2000) and university programs (Raabe & Beehr, 2003; Scandura & Williams, 2004), often assign the immediate supervisor as the mentor. Supervisory mentors are believed to provide a greater influence over their protégés' career developmental opportunities and assignments than non-supervisory mentors (Raabe & Beehr, 2003; Scandura & Williams, 2004). In their study of 275 MBA students, Scandura and Williams (2004) reported that this influence might be attributed to the impact supervisors have on writing the protégé's performance appraisal coupled with knowing what is needed for the protégé's development in the work environment. This perceived benefit of supervisory mentors is contingent upon the supervisor being knowledgeable about the protégé's job, responsibilities, and skills needed for career development (Eby & Lockwood, 2005; Raabe & Beehr, 2003; Scandura & Williams, 2004).

In her study of 224 CGOs, Gibson (1998) found that career related mentoring was a primary influence of protégés' perceptions of effective mentoring. Gibson's (1998) results showed that protégés reported higher perceptions of effective mentoring with supervisory mentors than with non-supervisory mentors. Su (2005) conducted a survey of 283 military graduate students and found that participants with a supervisory mentor

indicated higher perceptions of mentoring effectiveness the longer the participants were in a formal program compared to students that were in a formal program for a shorter duration.

Paglis, Green and Bauer (2006) surveyed 130 doctoral students in a formal mentoring program whose doctoral advisors were designated as mentors. The study found that students reported higher productivity and self-efficacy with a supervisor mentor than with a non-supervisor mentor. Another aspect of the study by Paglis et al. (2006) was the indication of a slightly negative impact the supervisor mentor had on career choice in some of the student cases. These indications are consistent with Kram's (1985) theory that even with good mentorship, there is always a possibility of potentially negative and adverse outcomes in a mentoring relationship (Paglis, et al., 2006).

Examples of adverse effects of mentoring include the areas of reprisal and risk. Scandura (1998) indicated that a protégé might be reluctant to discuss problems for fear of repercussions such as written or oral rebuke from the supervisor. The protégé may cover up issues that really need resolution believing if brought to the supervisor's attention, the issue may negatively influence his performance appraisal (Scandura, 1992).

Another situation involves the common perception that formal mentoring is for at-risk performers only; therefore, individuals who enter such relationships do so because they need remedial attention (Ragins & Cotton, 1999; Scandura & Williams, 2001). This negative perception may also hinder program participation.

The negative perceptions of mentoring should be addressed and dispelled by organizational leadership. When an organization is matching mentors and protégés, potential obstacles such as age, race and gender may be present in the mentor or protégé

(Dreher & Ash, 1990; Ragins & Cotton, 1999). A mismatch may have the potential to make the mentoring relationship uncomfortable, which may diminish the motivation to provide mentoring guidance and time with the protégé (Ragins & Cotton, 1999). A carefully matched and monitored mentor-protégé dyad can achieve success while minimizing the impacts caused by biases of background, age, race, and/or gender (Burke, McKeen, & McKenna, 1994; Noe, 1988; Raabe & Beehr, 2003; Ragins & Cotton, 1999).

Careful matching is matching a mentor and protégé by taking into account the goals of the protégé, skills and background (Raabe & Beehr, 2003). The Burke et al. (1994) study of 94 mentors in high technology firms indicated that mentor and protégé who share similar backgrounds, interests, and work styles indicated receiving higher mentoring function compared to dyads without the similar traits (Burke et al., 1994). Ragins and Cotton (1999) studied the perception of the effect of gender combinations in 589 cases and indicated the only adverse situation involved a female mentor and male protégé compared with other gender combinations (Ragins & Cotton, 1999). The positive indications are the more traits the mentor and protégé have in common, the more effective the mentoring might be (Burke, et al., 1994; Noe, 1988; Raabe & Beehr, 2003; Ragins & Cotton, 1999), but this is not a universal truth or all mentoring programs would simply match mentoring dyads with similar traits (Eby, Butts, Lockwood & Simon 2004).

The organization has been shown to benefit from having a formal mentoring program due to employees participating in effective formal mentoring relationships having reported higher levels of career and work satisfaction than those without mentors (Chao, et al., 1992; Tenenbaum, Crosby & Gliner, 2001; Underhill, 2006). The ability to provide designated opportunities to develop actions and behaviors described as career

and psychosocial functions makes a formal mentoring program a viable avenue for many organizations (Ragins & Cotton, 1999) and improves the organizations by developing desired skills and behaviors in the workforce (Underhill, 2006).

Lastly, the potential benefit of a formal program comes with a cost to the organization in having to provide the matching, designated mentoring time, and management for the mentoring to occur at an expense of diverting the mentor, protégé, and program management from completing other tasks for the organization (Kram, 1985; Ragins & Cotton, 1999; Ragins & Scandura, 1999). The cost factor may deter an organization from considering or implementing a formal program and force them to rely on the hope that informal mentoring is taking place (Ragins & Scandura, 1999).

Informal Mentoring

Informal mentoring is usually a spontaneous relationship that is not formally structured, managed or recognized by the organization (Chao, et al., 1992). Informal mentoring relationships are typically longer in duration than formal mentoring relationships (Kram, 1985). By utilizing a comparison timeline, formal mentoring could typically last from six months to a year, while informal mentoring is typically three to six years in duration (Kram, 1985).

In their study of 352 female and 257 male protégés, Ragins and Cotton (1999) reported protégés with informal mentors viewed their mentors as more effective in providing career development functions and received greater compensation than the protégés with formal mentors. Scandura and Williams (2001) reported similar results in their study of 365 MBA students from manufacturing and service industries. The study found that the informal mentors were believed to be more effective and the protégées'

perceived more career development functions than students in formal mentoring programs (Scandura & Williams, 2001).

The other aspects of informal mentoring to be considered are the potential obstacles associated with an informal program. Some of the obstacles of an informal mentoring relationship are associated with the selection process (Kram, 1985; Ragins & Cotton, 1999; Scandura & Williams, 2001). The normal selection process for a mentor is that protégés typically select mentors when the protégés view as potential role models, while mentors typically select protégés similar to themselves or considered high performers (Gibson, 1998; Lankau, Riordan & Thomas, 2005; Ragins & Cotton, 1999). This process has the potential pitfall of discouraging or denying individuals not considered high performers from pursuing the opportunity of a mentoring relationship (Lankau, et al., 2005; Ragins & Cotton, 1999), but the choice to initiate a mentoring relationship is available.

An informal program allows the mentor or the protégé to initiate the mentoring relationship. A potential obstacle exists in terms of perceived barriers to initiating or obtaining a mentor. Research suggests protégés may be reluctant to initiate an informal relationship because of differences in gender (Eby, Butts, Lockwood & Simon, 2004; Hurley & Fagenson-Eland, 1996; Scandura & Williams, 2001). Scandura and Williams (2001) surveyed 365 MBA students, and their results indicated male protégés perceived more vocational support (career development) and psychosocial support than female protégés in protégé-initiated mentorships. The study indicated informal program protégés perceived receiving more mentoring than protégés in formal programs. With

respect to role modeling, the protégés also indicated same-gender relationships may benefit more than cross-gender relationships (Scandura & Williams, 2001).

Another potential obstacle deals with cross-gender relationships and the possibility that the initiation of a mentoring relationship may be misconstrued as sexual advancement and the initiating person charged with sexual harassment, therefore, a liability in today's society (Eby, et al., 2004; Hurley & Fagenson-Eland, 1996; Ragins & McFarlin, 1990). Hurley and Fagenson-Eland (1996) reported that fears of both the male mentor and female protégé interacting in social situations will be misconstrued as involving sexual activity and jeopardize the relationship. Management should remain conscious of the fact that elimination of sexuality and intimacy in cross-gender relationships is not possible (Hurley & Fagenson-Eland, 1996) and be vigilant by conducting mentoring training that increases all participants' awareness of the potential hazards and minimizes the potential for abuse to occur.

A comparison of formal and informal programs suggests that both types of programs can encompass some or all of the mentoring functions mentioned. Formal and informal programs also differ in how the relationships are initiated. As mentioned, informal mentoring is a relationship that forms and evolves spontaneously when protégés and mentors have shared interests, admirations, or job demands (Allen & Eby, 2004; Lankau, et al., 2005; Noe, 1988; Tenenbaum, et al., 2001). Formal mentoring, by comparison, is usually an organized mentoring program managed by the organization that typically uses a systematic selection and matching process (Chao, et al., 1992; Ragins & Cotton, 1999). A good matching process and training on mentoring in the formal programs (Eby, et al., 2004; Hurley & Fagenson-Eland, 1996; Scandura & Williams,

2001) might mitigate some obstacles, such as background, traits, and gender, but other issues may still arise.

Costs of formal mentoring programs are directly incurred by the organization. Likewise, the individual mentors and protégés incur costs in terms of time spent dedicated to the mentoring relationship (Ragins & Cotton, 1999). The informal program does not have a direct cost attributed to the implementation or management of an informal program, but there can be the indirect cost of lost productivity and time to the organization when mentoring is taking place at work (Ragins & Scandura, 1999).

Though management literature has not specifically identified formal or informal mentoring as being superior, research does suggest that effective mentoring has been associated with positive outcomes such as higher levels of career and work (job) satisfaction (Chao et al., 1992; Scandura & Williams, 2004; Underhill, 2006), more promotions, higher incomes, higher pay satisfaction (Dreher & Ash, 1990; Underhill, 2006), higher productivity, and higher self-efficacy (Paglis, et al., 2006; Read, 1997) to name a few.

Mentoring Studies in the Military

Historically, mentoring research has been conducted in civilian environments with respondents such as MBA students (Scandura & Williams, 2004); middle-level managers, operating restaurant managers, and professional level employees (Tepper, et al., 1996). The corresponding mentoring benefits are also related to civilian performance and rewards (Chao et al., 1992; Dreher & Ash, 1990; Paglis, et al., 2006; Underhill, 2006). As noted earlier, mentoring is important in the military environment, and several studies have evaluated perceptions of effective mentoring using military respondents (Baker,

2001; Gibson, 1998; Oakes, 2005; Payne & Huffman, 2005; Read, 1997; Singer, 1999; Su, 2005). These studies reported protégés' perceptions of effective mentoring in formal and informal programs in the military environments involving the Army, Coast Guard, Navy, Marine Corps and the USAF.

Read (1997) surveyed 217 US Army Reserve commissioned officers instructing at the US Army Reserve Forces Schools after having completed the Instruction Training Course (ITC) at Fort Leavenworth, Kansas. ITC program managers assigned selected officers formal mentors, while other officers had to seek out informal mentors (Read, 1997). The formally mentored group indicated increased perceptions of assistance from professional instructors and reported being more prepared to begin instructing when compared to the instructors with informal mentors (Read, 1997). This mentoring gave the instructors competence, identity, and effectiveness in a professional role.

In 2005, Texas A&M University conducted research on officers in the US Army. Payne and Huffman (2005) conducted a longitudinal study that surveyed 1,000 US Army officers with two surveys over a 2 year period with a year between survey applications. The results of the study indicated that mentoring resulted in higher levels of affective commitment and continuance commitment by protégés than nonmentored participants one year later. The study reported that protégés indicating supervisory mentors also indicated higher levels of affective commitment than protégés with nonsupervisor mentors, but continuance commitment was not increased enough with supervisory mentors to be statistically significant (Payne & Huffman, 2005). Lastly, Payne and Huffman (2005) measured the level of affective commitment comparing the types of mentoring support received. Protégés who received career-related mentoring support

were compared to those who received psychosocial support, and results indicated that the type of support received was not a significant factor in raising the level of affective commitment. This study reported that in the Army population surveyed that a mentoring relationship, regardless of the type of support (career-related or psychosocial) increased organizational commitment and reduced turnover (Payne & Huffman, 2005).

Payne and Huffman's (2005) study, along with Read's (1997) study, found that mentoring was taking place in the Army environment. Mentoring is being done in formal programs and informal programs to impart career-related and psychosocial support, but mentoring is not being dictated by formal doctrine as it has been in the Air Force (AFPD 36-34, 1996; Payne & Huffman, 2005; Read, 1997).

The USAF established a formal mentoring program in 1996 in order to improve the performance of airmen in their duties (AFPD 36-34, 1996). General Ronald R. Fogleman, Air Force Chief of Staff, published the Air Force Policy Directive (AFPD) 36-34 to establish a mentoring program. AFPD 36-34, the Air Force Mentoring Program, goal is to “help each officer reach their full potential as officers, thereby enhancing the overall professionalism of the of the officer corps” (AFPD 36-34, 1996:1). The AFI 36-3401 (2000, p.2) established formal mentoring in which the roles are mandated: "the immediate supervisor or rater is designated as the primary mentor". The CGO, therefore, is the protégé.

Based on military studies (Payne & Huffman, 2005; Read, 1997) and previous literature (Paglis, et al.; Raabe & Beehr, 2003; Ragins & Cotton, 1999) there is insufficient evidence to claim the formal program or the informal program superior, however, there is enough evidence to justify testing to see if participants in informal or

formal programs differ on perceptions of mentoring. The USAF mentoring program is a formal program and investigating mentoring in the USAF would entail comparing perceptions of mentoring indicated by CGO's receiving formal mentoring and CGO's receiving informal mentoring.

H1: CGOs in formal mentoring relationships will differ in perceptions of effective mentoring compared to CGOs in informal mentoring relationships.

Baker (2001) surveyed 568 midshipmen at the United States Naval Academy (USNA) and respondents were asked to rank mentoring functions received from their mentor. The results indicated that 323 midshipmen reported having mentors and that functions of support and encouragement received the highest ranking (Baker, 2001). The importance of mentoring relationships was reported to being significantly correlated with career-related functions of the development of military skills and enhanced military career along with psychosocial functions of support and encouragement. Baker (2001) reported midshipmen that indicated having received mentoring had higher indications of satisfaction of the student experience at the USNA compared to nonmentored respondents. Mentored midshipmen also viewed mentoring as important for personal and professional development at USNA (Baker, 2001).

Mentoring related research was conducted by Oakes (2005) in surveying 148 Navy and Marine Corps junior officers at the USNA. Oakes (2005) explored the factors that might motivate officers to mentor and what mentoring functions were most commonly used when developing military leaders. In addition to participation being measured, the effects of gender, race, career intentions, marital status and children, and education level of officer were evaluated and these were found to be statistically

insignificant. The factors of time in service and receiving previous mentoring were reported as statistically significant. Officers that indicated being the most motivated to mentor midshipmen had an average of 10.8 years of service and had previous mentoring experience. The respondents also indicated that they preferred to use more psychosocial functions than career functions when mentoring. These results align with the environment and mission of the USNA, which is designed to support and integrate midshipmen while placing less of a focus on promoting military careers (Oakes, 2005).

Oakes' (2005) research appears to be contradictory to the mentoring literature reviewed. The literature reviewed indicated that protégés in informal programs indicated more psychosocial mentoring being received than protégés in formal programs (Allen & Eby, 2004; Ragins & Cotton, 1999; Scandura & Williams, 2001). The USNA is a military training environment with a hierarchical organization and regulations, similar in structure to an active-duty Air Force environment. This investigation of the USAF mentoring program will examine the CGO in formal and informal mentoring relationships and perceived differences of perceptions of psychosocial mentoring in order to see if formal mentoring differs from informal mentoring.

H2: CGOs in formal mentoring relationships will differ in perceptions of psychosocial mentoring compared to CGOs in informal mentoring relationships.

Singer (1999) conducted research involving the US Coast Guard. In his sample of 91 Coast Guard CGOs, he found psychosocial mentoring functions along with networking increased the likelihood of junior officers identifying their supervisors as mentors. The study also reported that junior officers who did not have a mentor had the lowest scores on self-assurance, mentoring functions, and supervisory relationships

(Singer, 1999). Lastly, the junior officer who had more things in common with a mentor reported higher indications of increased mentoring functions being perceived than junior officers sharing fewer commonalities with mentor (Singer, 1999).

The USAF has had several studies conducted on its personnel. Su's (2005) research involved students enrolled at the Air Force Institute of Technology. The respondents indicated that CGO protégés in longer formal mentoring relationships typically reported increased perceptions of effective mentoring than CGO protégés in shorter, formal mentoring relationships. Su also studied a previous supervisor's current mentoring effectiveness as an informal mentor. He compared the current informal mentoring effectiveness to those separated from their previous supervisors for a longer time versus those separated for a shorter time, but no significant differences were found.

Gibson (1998) used a Mentoring Effectiveness Scale (adapted from Tepper, Shaffer & Tepper, 1996) in her study of USAF CGOs and found that receipt of career-related mentoring was a primary influence of effective mentoring, and results indicated that both formally assigned and informal mentors were perceived by the protégés as providing effective mentoring. Gibson (1998) reported that protégés indicated higher perceptions of effective mentoring with formal mentors than informal mentors.

Based on these military studies (Baker, 2001; Gibson, 1998; Read, 1997; Su, 2005) and previous literature (Paglis, et al., 2006, Raabe & Beehr, 2003; Ragins & Cotton, 1999; Scandura & William, 2004), there is an indication that protégés in formal programs reported receiving more career development mentoring than protégés in informal programs. There appears to be evidence suggesting career-related mentoring is reported more often in a formal program, but this may not be universally true in a

military environment. This investigation of the USAF mentoring program will examine the CGO perspective on perceptions of career-related mentoring in order to see if the formal and informal mentoring programs differ.

H3: CGOs in formal mentoring relationships will differ in perceptions of career-related mentoring compared to CGOs in informal mentoring relationships.

Collectively, these studies indicate the interest and even call for continued research involving effective mentoring relationships in the USAF and the perceived effectiveness of mentoring.

CHAPTER 3

METHODOLOGY

Preface

The purpose of this study was to compare the perceptions of mentoring by Air Force CGOs involved in mentoring programs in order to determine if there is a difference in perceptions of effectiveness from CGOs in formal and informal mentoring relationships. A survey was the method used by the Defense Manpower Data Center in order to collect the data and this cross-sectional study will examine the 2004 data collected (DMDC, 2004). This chapter will provide a brief summary of the survey administrative procedures, selection of sample, sample demographics and discussion of measures. In addition, the DMDC mentoring measures will be reported.

Procedures

Data were collected via a 194-item questionnaire administered to active duty personnel in the Army, Navy, Marine Corps and Air Force stationed world-wide by the DMDC (DMDC, 2004). The questionnaires were distributed through an email containing a link to the online Internet survey instrument. In order to encourage maximum participation and ensure participant anonymity, the online questionnaire instructions stated that involvement in the survey was voluntary and respondents' privacy was safeguarded in accordance with the Privacy Act of 1974 (DMDC, 2004).

Responses for this Web-based instrument were collected from November 22, 2004, to January 6, 2005 (DMDC, 2004). The information was recorded by the DMDC

in such a manner that subjects could not be identified directly or through identifiers linked to the subjects (DMDC, 2004).

Participants

The survey population considered was active duty military members of the Air Force, Marine Corps, Army, and Navy with at least six months of service and below flag officer rank (DMDC, 2004). The data used for this project were secondary data received from the December 2004 SOF Survey of Active-Duty Members and excluded National Guard and Reserve members. The DMDC utilized a stratified random sampling to identify potential respondents (DMDC, 2004).

This sampling process categorized all members of a population into homogenous groups, and members were chosen at random within each of the groups. Additionally, small groups were oversampled in comparison to their proportion of the overall population and weighted so that the groups were correctly represented (DMDC, 2004). This oversampling was done in order to ensure enough responses to analyze the data from the small groups. The DMDC generated a sample list of 35,044 individuals drawn using stratified random sampling from DMDC's Active-Duty Master Edit File (DMDC, 2004).

Completed surveys were defined as those with 50% or more of the questions answered; the response rate was 30%, yielding 10,621 completed surveys (DMDC, 2004). Of those, 2,210 identified themselves as Air Force. The Air Force sample was then organized according to rank and there were 411 identified as being CGOs. The CGO sample was then sorted according to whether a respondent had a mentor or did not have a mentor as shown in Table 2.

Table 2
Question 52 Frequencies

Item	Frequency	Percent
1. Your rater	88	21.4
2. Your senior rater	14	3.4
3. A person who is/was higher in rank than you, but not your rater or your senior rater	132	32.1
4. A person who is/was at your same rank	11	2.7
5. A person who is/was lower in rank than you	9	2.2
6. A person who is not or was not in the military at the time the mentoring was provided	17	4.1
Total	271	65.9
Missing System	140	34.1
Total	411	100

The sample of interest was CGOs who designated either their raters or persons who are higher in rank, but not their raters as their mentors. The formal program was based on the USAF mentoring program mandating that one's supervisor is the mentor (AFI 36-3401, 2001). The informal program was based on a conservative approach trying to minimize the potential of formal participants being intermixed in an informal program by eliminating participants designating their senior rater, person of the same rank, person of a lower rank, or their mentor not being in the military. Of the CGOs, 88 designated their rater as their mentor (formal) and 132 reported their mentor as a person who is higher rank, but not his or her rater (informal). This selection process yielded a sample size of 220 CGOs on which this project analysis was conducted.

The typical respondent was single (n = 137) and Caucasian (n = 181) and had approximately 3 years (n = 220, SD =.96) of military service. The combined sample (n=105) and females (n=114) were about evenly represented.

Measures

The DMDC (2003) Mentoring Effectiveness Scale (MES) composed of 16-items was used in the survey to measure the perceived effectiveness of overall mentoring (α =

.92, *n*=19,960). The data for this project was analyzed using the 16-item measure for overall mentoring (α = .92, *n* = 212). Table 3 lists the items that are used in the MES.

Table 3
DMDC Mentoring Effectiveness Scale

Variable & Source	*Items*	*a* = .92. n =212
	Mentoring Effectiveness Items	
Mentoring Effectiveness Scale	a. Teaches job skills	
Defense Manpower Data	b. Gives feedback on your job performance	
Center (2004)	c. Assigns challenging tasks	
	d. Helps develop your skills/competencies for future assignments	
	e. Provides support and encouragement	
	f. Provides personal and social guidance	
	g. Provides career guidance	
	h. Demonstrates trust	
	i. Acts as a role model	
	j. Protects you	
	k. Invites you to observe activities at his/her level	
	l. Instills Service core values	
	m. Provides moral/ethical guidance	
	n. Teaches/advises on organizational politics	
	o. Provides sponsorship/contacts to advance your career	
	p. Assists in obtaining future assignments	

The DMDC performed a factor analysis forcing a two-factor loading on the 2002 SOF data to explore if the MES items were measuring career development and psychosocial perceptions (DMDC, 2003). The DMDC 2002 MES data loaded on two factors with a good fit (CFI = .96 and RMSEA = .06). DMDC (2003) factor 1 contained higher loadings on of items e, f, g, h, i, l, and m (psychosocial) and factor 2 contained higher loadings on items a, b, c, d, j, k, n, o, and p (career development).

Career Development Mentoring. This scale was developed by DMDC (2003). Career development (question 53 items a, b, c, d, j, k, n, o and p) consisted of nine items and was intended to measure whether mentoring aided career development by teaching skills and helping with advancement. Examples of this measure included, “Teaches job skills” and “Helps develop your skills/competencies for future assignments”.

Respondents indicated their level of agreement with each statement based on a 5-point Likert-type scale ranging from 1 = *extremely helpful* to 5= *not at all helpful*. The reported Cronbach's alpha by DMDC (2003) was .91. The reported Cronbach's alpha for this project was .89 (n = 215, M = 3.68, and SD = 1.14).

Psychosocial Mentoring. This scale was developed by DMDC (2003). Psychosocial (question 53 items e, f, g, h, i, l, and m) consisted of seven items and was intended to measure the provision of social mentoring, such as providing psychosocial support and guidance. Examples of this measure included, "Acts as a role model" and "Provides personal and social guidance". Respondents indicated their level of agreement with each statement based on a 5-point Likert-type scale ranging from 1 = *extremely helpful* to 5= *not at all helpful*. The reported Cronbach's alpha by DMDC (2003) was .92. The reported Cronbach's alpha for this project was .90 (n = 217, M = 4.18, and SD = .90).

CHAPTER 4

RESULTS

Preface

The purpose of this research project was to determine if perceptions of mentoring would differ based on participation in a formal relationship or informal relationship. This chapter summarizes the results of this research project. The results of the factor analysis, scale frequencies, and the hypothesis analyses will be presented.

Factor Analysis

The construct of a good survey will use multiple items to measure a perception from different perspectives. The purpose of a factor analysis with rotation is to achieve a simple structure (Kim & Mueller, 1984). The item wording of the MES indicated that some of these items might be correlated and were measuring the same perception and a general factor may be present (Kim & Mueller, 1984). This perception of a general factor was also supported by Kim & Mueller (1984), who suggested factor analysis was based on the fundamental assumption that underlying factors that are smaller in number are responsible for the covariation among the observed variables. Making this assumption, an oblique rotation relaxes the assumption that the variable must be uncorrelated and allows for the discovery of correlated factors (Kim & Mueller, 1984).

The DMDC performed a factor analysis forcing a two-factor loading on 2002 SOF data to explore if the MES items were measuring career development and psychosocial perceptions (DMDC, 2003). For this study a factor analysis forcing a two-factor loading was completed using the 2004 MES data (n = 10,621). The factor analysis

results for this research are reported in Table 4. Factor 1 produced higher loadings of items e, f, g, h, i, l, and m (psychosocial) and factor 2 produced higher loading of items a, b, c, d, j, k, n, o, and p (career development). Items j and n loaded with a separation of .03 and required more analysis to justify factor placement. These items were scrutinized for face validity and determined that the item content and the higher loading factor justified these item to be categorized on factor 2. This factor analysis item loading replicates the items reported by the 2002 SOF measures report (DMDC, 2003).

Table 4
Primary Factor Analysis on 2004 SOF Data

DMDC 2004 Mentoring Rotated Factor Matrrix

	Factor	
	1	2
Psychosocial Scale α = .90, n = 217		
e. Provides support and encouragement	**0.64**	0.36
f. Provides personal and social guidance	**0.56**	0.29
g. Provides career guidance	**0.70**	0.31
h. Demonstrates trust	**0.80**	0.23
i. Acts as a role model	**0.83**	0.18
l. Instills Service core values	**0.58**	0.39
m. Provides moral/ethical guidance	**0.67**	0.30
Career Development Scale α = .89, n = 215		
a. Teaches job skills	0.24	**0.67**
b. Gives feedback on your job performance	0.26	**0.71**
c. Assigns challenging tasks	0.13	**0.75**
d. Helps develop your skills/competencies for future assignments	0.35	**0.64**
j. Protects you	0.40	**0.43**
k. Invites you to observe activities at his/her level	0.30	**0.55**
n. Teaches/advises on organizational politics	0.44	**0.47**
o. Provides sponsorship/contacts to advance your career	0.39	**0.53**
p. Assists in obtaining future assignments	0.29	**0.56**

Extraction Method: Pricncipal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization
Rotation convergerd in 3 iterations

Scale Frequencies

The scales were determined based on the information provided by DMDC (2003) and the results of the factor analysis conducted on the 2004 data set. The scales were

evaluated in SPSS (version 14.0) and the researcher chose to use listwise case deletion. The listwise exclusion was used to exclude a case that had missing data and have the case subtracted from the total number of cases analyzed. The listwise exclusion was a conservative approach that allowed cases to be used that had missing data and not exclude the case entirely from this study. The entire sample of 220 was analyzed for each scale in this study, but due to missing data, some of the cases were eliminated. The process of case elimination by SPSS changed the number of cases analyzed in each scale. Table 5 shows the results of the valid cases analyzed for each scale.

Table 5
Scale Frequencies on 2004 SOF Data

Scale Frequencies

		Overall Mentoring scale	Psychosocial Scale	Career Development Scale
n	Valid	212	217	215
	Missing	8	3	5
Total		220	220	220

Hypothesis 1

The purpose of hypothesis one was to determine if CGOs in a formal mentoring relationship would differ in perceptions of overall mentoring (16-item MES) compared to CGOs in informal mentoring relationships. This hypothesis was evaluated using independent t-test sample. The t-test compared the mean difference between the formal (n = 86) and informal (n = 126) mentoring groups. The entire combined sample was used in this analysis (n = 212).

The formal mentoring participants reported a statistically significant difference of mentoring perceptions (n = 86, M = 4.14, SD = .88) than did the informal mentoring participants (n = 126, M = 3.77, SD = .96). Based on these results, there is a significant statistical difference between formal and informal relationships when it comes to overall

mentoring as CGOs in formal mentoring relationships reported higher perceptions of overall mentoring than CGOs in informal relationships. Thus, hypothesis one is supported. Results for this hypothesis are shown in Table 6.

Table 6
Independent t-test for Overall Mentoring with 16-item measure

Independent t-test for Overall Mentoring

Program Indicator	*n*	*M*	*SD*	*df*	*t*	*p*
1. Your rater (formal)	86	4.14	0.88	210	2.93	.00**
3. A person who is/was higher in rank than you, but not your rater or your senior rater (informal)	126	3.77	0.96			

Two-tailed test with n = 212
**p < .01, two-tailed test

Hypothesis 2

The purpose of hypothesis two was to determine if CGOs in formal mentoring relationships would differ in perceptions of psychosocial mentoring compared to CGOs in informal mentoring relationships. The formal mentoring participants did not report a statistically significant difference of mentoring perceptions (n = 87, M = 4.22, SD = .91) than did the informal mentoring participants (n = 130, M = 4.16, SD = .89) as shown in Table 7. Based on these results, there is not a significant statistical difference between formal and informal relationships when it comes to psychosocial mentoring as CGOs in formal mentoring relationships reported similar perceptions of psychosocial mentoring to CGOs in informal relationships. Thus, the results do not support hypothesis two.

Table 7

Independent t-test for Psychosocial Mentoring

Independent t-test for Psychosocial Mentoring

Program Indicator	*n*	*M*	*SD*	*df*	*t*	*p*
1. Your rater (formal)	87	4.22	0.91	215	.47	.64
3. A person who is/was higher in rank than you, but not your rater or your senior rater (informal)	130	4.16	0.89			

Two-tailed test with n = 217

**p < .01, two-tailed test

Hypothesis 3

The purpose of hypothesis three was to determine if CGOs in a formal mentoring relationship will differ in perceptions of career development mentoring compared to CGOs in informal mentoring relationships. The formal mentoring participants reported a statistically significant difference of mentoring perceptions (n = 87, M = 4.04, SD = .90) than did the informal mentoring participants (n = 128, M = 3.43, SD = 1.22) as shown in Table 8. Based on these results, there is a significant statistical difference between formal and informal relationships when it comes to career development mentoring: CGOs in formal mentoring relationships reported higher perceptions of career development mentoring than CGOs in informal relationships. Thus, hypothesis three is supported.

Table 8

Independent t-test for Career Development Mentoring

Independent t-test for Career Devolopment Mentoring

Program Indicator	*n*	*M*	*SD*	*df*	t	*p*
1. Your rater (formal)	87	4.04	.90	213	4.23	.00**
3. A person who is/was higher in rank than you, but not your rater or your senior rater (informal)	128	3.43	1.22			

Two-tailed test with n = 215

**p < .01, two-tailed test

In summary, formal mentoring participants reported a statistically significant difference of mentoring perceptions than did the informal mentoring participants with regard to overall mentoring and career development mentoring. Results did not support the hypothesis of a difference in formal and informal mentoring relationships when it pertained to psychosocial mentoring.

CHAPTER 5

CONCLUSIONS

Preface

The purpose of this study was to further research efforts in mentoring and to determine if there was a difference in perceived mentoring effectiveness based on whether the CGOs were involved in formal or informal mentoring relationships in the USAF. This chapter presented the conclusions to this study. In considering the results of this study, limitations and future research possibilities will be presented. Finally, contributions to the USAF are discussed.

Discussion

Hypothesis 1

The purpose of hypothesis one was to determine if CGOs in a formal mentoring relationship would differ in perceptions of mentoring compared to CGOs in informal mentoring relationships. The support of this hypothesis supports that a formal mentoring relationship in the USAF was perceived as being more effective by CGOs than informal relationships when it comes to overall mentoring.

Results supported previous research using supervisors as mentors outside of the confines of a military environment. This perceived benefit of supervisory mentors is contingent upon the supervisor being knowledgeable about the protégé's job, responsibilities, and skills needed for career development (Eby & Lockwood, 2005; Raabe & Beehr, 2003; Scandura & Williams, 2004).

The USAF mentoring program mandated that one's supervisor is the mentor (AFI 36-3401, 2001). The items that are contained in the MES indicated that CGOs in the USAF perceived they received more effective mentoring from their supervisor than CGOs that engaged in informal mentoring relationships in terns of career related mentoring. This was statistical support that the USAF mentoring program was working in the USAF.

Hypothesis 2

The purpose of hypothesis two was to determine if CGOs in a formal mentoring relationship would differ in perceptions of psychosocial mentoring compared to CGOs in informal mentoring relationships. The lack of support for this hypothesis suggested that a formal mentoring relationship was not perceived by CGOs as being better at accomplishing psychosocial mentoring than an informal mentoring relationship in the USAF.

The results of hypothesis one suggested hypothesis two would also have been supported. This is not the case and may be due to the condition that a CGO is still learning his job and has not had enough time to develop competence, an identity of his own, or know the job well enough to be effective in a professional role. At the level of CGO, the psychosocial activities may not be a high priority for a CGO or the supervisor.

Hypothesis 3

The purpose of hypothesis three was to determine if CGOs in formal mentoring relationships would differ in perceptions of career development mentoring compared to CGOs in informal mentoring relationships. The support of this hypothesis suggested that

formal mentoring was perceived as being more effective than the informal relationships received in the USAF environment.

These results are similar to previous research involving the USAF mentoring programs conducted by Gibson (1998). Her studies also suggests CGOs in formal programs reported receiving more effective career-related mentoring compared to mentoring received from informal mentors (Gibson, 1998). The significance of this study was that respondents were from multiple geographic locations and the results expand the CGO population that perceived formal mentoring as being effective.

The USAF has actively promoted that a CGO focus on learning technical skills and experience at base level. An aspect of the USAF mentoring program was focused on a CGO gaining technical skills required for career progression. This focus on technical skills and career progression may be enough to cause the difference between formal and informal mentoring reported in this study.

In summary, this study confirms that the USAF mentoring program was a positive influence on perceptions of overall mentoring and career development mentoring for the participants. These results are consistent with the reasoning behind why the USAF established a formal mentoring program (AFPD 36-34, 1996).

Limitations

The DMDC surveyed active duty personnel located world wide, but there may be some issues based on generalizability due to the following issues. The USAF CGOs did not have world wide participation. Only the CGOs from bases located in Europe, the United States and its territories responded. In addition, all the participants were active duty USAF and the results may not be applicable to non-military personnel. Addressing

these minor limitations and using this sample, inferences can be made in regards to the behaviors of all USAF CGOs due to the sampling procedures of the DMDC (2004).

The DMDC employed web-based surveys as the only data collection method. The potential limitation for this research was that the survey was a self-reporting instrument. Self-reporting instruments have social desirability and consistency as potential issues (Podsakoff & Organ, 1986). Respondents may feel the need to answer the questions in accordance with the expectations of the organization they belong to or society as a whole and will do so consistently for the entire survey (Podsakoff & Organ, 1986).

The DMDC did not provide a definition of mentoring incorporated within the survey instrument and participants may not have understood what constitutes mentoring. This lack of understanding may have resulted in incorrectly indicating not having a mentor. Another issue was that the USAF has a mandated formal mentoring program and should have close to 100% participation (AFI 36-3401, 2001), but 34% (140 out of 411) CGOs did not indicate having any type of mentoring. This was an indication that the mentoring program may not have been implemented or interpreted as directed.

The DMDC collapsed data ranges. Separation of ranks could not be identified, due to the data being aggregated into one category. This aggregation of data also did not allow for the researcher to distinguish between new officer accessions and officers with prior enlisted experience, due to the presentation of the time in service data.

The data was analyzed using listwise case exclusion to excluded cases that had missing data. The excluded cases were then subtracted from the total number of cases analyzed. This was a conservative analysis approach that allowed cases to be used that

had missing data. This process caused the number of cases analyzed to change for every test and could have been corrected by the researcher, but did not affect the results of this study.

Future Research

The training a mentor receives in the USAF to be a mentor and the education protégés are receiving to utilize the program. This would also required identification of mentoring dyads to examine the perception of the mentor and the protégé on what is perceived as effective mentoring. Other areas of focus would be to focus on formal program and the advertising the program has received.

Contributions for the Air Force

The formal mentoring relationship positive results related to these findings should be a high priority and encouraging for supervisors and leaders in the USAF. In the pursuit of making people more productive, many organizations try to utilize mentoring programs in the hopes of improving their employees' job comprehension and mastering job skills. The Air Force is no exception, but a very surprising response rate of only 66% of CGOs indicated having a mentor suggested that a substantial percentage of the USAF CGO population does not feel they are getting the mentoring that was mandated. The USAF is continuously transforming and trying to make people more productive and mentoring is a valuable tool to increase the value of our workforce. This study identifies a potential situation and it may be handled by educating the USAF members on the mentoring program and its benefits.

Summary

The purpose of this study was to further research efforts in mentoring and to determine if there was a difference in perceived mentoring effectiveness based on whether the participants were involved in formal or informal mentoring relationships in the military environment of the Air Force. The discussion of the results offered reasons as to why the hypotheses were or were not supported. The limitations of the study included location of participants, sample size, lack of generalizability, self-reporting surveys, definition of mentoring, and the collapsed data ranges. Future research pertaining to these relationships should be concentrated on addressing these limitations with the intention of repeating this study. Finally, there are some contributions for supervisors and leaders of USAF that the mentoring program was perceived by CGOs as being effective. The mentoring program was perceived by CGOs as effective and needs to be accessible to all CGOs so that the USAF organization can reap the positive rewards of a well mentored workforce.

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Appendix 1: Human Subject Research Review Forms

24 January 2007

MEMORANDUM FOR AFIT/ENV
AFIT/ENR
AFRL/Wright Site IRB
IN TURN

FROM: AFIT/ENV/GIR
2950 Hobson Way, WPAFB, OH 45433

SUBJECT: Request for exemption from human experimentation requirements (32 CFR 219, DoDD 3216.2 and AFI 40-402) for Thesis Research, AFIT/ENS/GLM, The Perceived Effectiveness of Mentoring by Company Grade Officers in the U.S. Air Force.

1. The purpose of this study is to evaluate perceived effectiveness of mentoring received by Air Force company grade officers. Results may be presented to assist Air Force leadership for future mentoring programs and policies regarding the company grade officer corps.

2. This request is based on the Code of Federal Regulations, title 32, part 219, section 101, paragraph (b) (4) Research, involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

3. The following information is provided to show cause for such an exemption:

    3.1. Equipment and facilities: No equipment or facilities required.

    3.2. Subjects: The Department of Defense Manpower Data Center (DMDC) generated a sample list of 35,044 individuals using stratified random sampling from the Active-Duty Master Edit File of active duty personnel drawn from the Army, Navy, Marine Corps and Air Force stationed worldwide. This research will use a data subset consisting of 411 Air Force company grade officers.

    3.3. Timeframe: Data were collected between 22 November 2004 and 6 January 2005.

    3.4. Data collected: No new data will be collected. Data were collected in 2004 and 2005 by DMDC under Report Control Symbol DD-P&R(AR)2145, expiring 5/23/05. An example of the survey instrument is attached. Data collected included opinions regarding specific aspects of active duty military status of forces and demographic data to include branch of service, gender, education, pay grade, marital status, race/ethnicity, duty location, job satisfaction, retention

intention, operational tempo, stress, deployments since September 11, 2001, leadership, organizational culture, career opportunities, organizational effectiveness, organizational commitment, willingness to recommend service, permanent change of station moves, support services, top issues related to deployments, health and mentoring. This research focuses on evaluating the mentoring data using ANOVA and factor analysis techniques.

3.5. Risks to subjects: Risk of disclosure of individual responses or private information was mitigated by the questionnaires being distributed through an email containing a link to the online Internet survey instrument. In order to encourage maximum participation and ensure participant anonymity, the online questionnaire contained instructions that involvement in the survey was voluntary and respondents' privacy was safeguarded in accordance with the Privacy Act of 1974. In addition, only group statistics were reported in accordance with DoD Directive 8910.1 that states that all data collection in the DoD must be licensed and the license displayed as a Report Control Symbol with expiration date. No personally identifiable information was included in the database provided by DMDC to the researcher in the current study.

3.6. Informed consent: A copy of the Privacy Act Statement of 1974 was presented for their review. No adverse action was taken against those who chose not to participate. Subjects were made aware of the nature and purpose of the research by the DMDC and disposition of the survey results.

4. If you have any questions about this request, please contact Major Sharon G. Heilmann (primary investigator) – Phone 785-3636, ext. 7395; E-mail – sharon.heilmann@afit.edu.

SHARON G. HEILMANN, Major, USAF
Faculty Advisor, AFIT/ENV

JASON B. WOLFF, Capt, USAF
Graduate Student, AFIT/ENS

Attachment:
DMDC survey instrument

DEPARTMENT OF THE AIR FORCE
AIR FORCE MATERIEL COMMAND
WRIGHT-PATTERSON AIR FORCE BASE OHIO

21 February 2007

MEMORANDUM FOR AFRL/HE

FROM: AFRL/Wright Site Institutional Review Board

SUBJECT: Request for exemption from human experimentation requirements

1. Protocol title: The Perceived Effectiveness of Mentoring by Company Grade Officers in the U.S. Air Force

2. Protocol number: F-WR-2007-0049-E

3. The above protocol has been reviewed by the AFRL Wright Site IRB and determined to be **exempt** from IRB oversight per 32 CFR 219.101(b)(4) which exempts "research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects."

4. The IRB is responsible for ensuring timely review of protocols in accordance with applicable regulations and is forwarding this protocol to the AIO for consideration and EXEMPTION. This approval will be formally recorded in the minutes of the next IRB meeting under Exempt protocols.

5. For questions or concerns, please contact the IRB administrator, Helen Jennings at (937) 904-8094 or helen.jennings@wpafb.af.mil OR Lt. Douglas Grafel at douglas.grafel@wpafb.af.mil or (937) 656-5437.

JEFFREY BIDINGER, Maj, USAF, MC, FS
Chair, AFRL/Wright Site IRB

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 074-0188

PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.

1. REPORT DATE *(DD-MM-YYYY)*	**2. REPORT TYPE**	**3. DATES COVERED** *(From – To)*
21-03-2007	**Master's Thesis**	Sep 2005 – Mar 2007

4. TITLE AND SUBTITLE

The Perceived Effectiveness of Mentoring by Company Grade Officers in the United States Air Force

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5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

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Wolff, Jason B., Captain, USAF

5d. PROJECT NUMBER

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5f. WORK UNIT NUMBER

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Air Force Institute of Technology
Graduate School of Engineering and Management (AFIT/ENV)
2950 Hobson Way
WPAFB OH 45433-7765

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APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED.

13. SUPPLEMENTARY NOTES

14. ABSTRACT

Businesses and organizations are continuously trying to make people more productive by using mentoring. The benefits of mentoring include higher levels of career satisfaction, incomes, promotions, self-efficacy and productivity.

Past research has supported two general approaches referred to as informal and formal mentoring. Informal mentoring relationships are spontaneous and occur between two people without the involvement of the organization. Formal relationships are managed and sanctioned by the organization. The United States Air Force has a formal mentoring program.

The purpose of this research was to evaluate the perceptions of mentoring effectiveness by company grade officers in the United States Air Force. Specifically, this thesis sought to determine the perceived effectiveness of mentoring by participants in a formal mentoring relationships compared to participants in informal mentoring relationships using secondary data collected by the Defense Manpower Data Center.

The results indicated that formal mentoring was perceived as more effective than informal mentoring in overall mentoring and career development functions. The results for psychosocial mentoring were insignificant. Results suggested that the current formal mentoring program is effective in terms of CGOs perceptions of general and career related mentoring.

15. SUBJECT TERMS

Mentoring, formal relationship, informal relationship, career development, psychosocial, Factor Analysis

16. SECURITY CLASSIFICATION OF:			**17. LIMITATION OF ABSTRACT**	**18. NUMBER OF PAGES**	**19a. NAME OF RESPONSIBLE PERSON**
REPORT	**ABSTRACT**	**c. THIS PAGE**			Sharon G. Heilmann (ENV)
U	**U**	**U**	**UU**	61	**19b. TELEPHONE NUMBER** *(Include area code)* (937) 255-3636, ext 7395; e-mail: Sharon.Heilmann@afit.edu

Standard Form 298 (Rev: 8-98)
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